REMARKS

Reconsideration of the application is requested in view of the amendments to the claims and the remarks presented herein.

The claims in the application are claims 1 and 3 to 10, all other claims being cancelled.

Claims 1 to 10 were rejected under 35 U.S.C. 102 as being anticipated by or under 35 U.S.C. 103 as being obvious over the Halstrom and Saari patents. If not anticipated, the Examiner deems the steps to be optimized. Claims 2 and 3 were rejected under 35 U.S.C. 103 over the same art taken in view of Lihme which is cited to show use of an expanded bed. Claim 5 was rejected under 35 U.S.C. 103 over the same art taken in view of Guddal which is cited to show aromatic hydrocarbons as being good solvents. Claims 6 to 10 were rejected under 35 U.S.C. 103 as being obvious over the cited art taken in view of Ito and Horwitz. Ito is cited to show that a pH refining zone produces a train of rectangular solute peaks and Horowitz is cited as showing acidifying enhances retention.

Applicants respectfully traverse these grounds of rejection since the cited art in no way anticipates or renders obvious applicants'process to purify N-carboxy anhydrides (NCA) by contacting in a non-polar solvent with 0.5 to 10% by weight of silica based on the N-carboxy anhydride. The Halstrom '344 patent disclosed the purification of NCA containing fraction by passing it through a silica gel column using chloroform as eluant

(lines 25-28, col. 11). The Saari '971 patent teaches purification of NCA compounds by chromatography over silica gel with dry ethyl acetate as eluant. Applicants use a non polar solvent while chloroform and ethyl acetate are polar solvents and the references do not anticipate the claims.

With respect to the obviousness rejections, the Lihme patent discloses chromatography columns wherein the chromatography medium is fluidised. The amount of matrix used in this column is more than 0.5 to 10% by weight with respect to the total weight of NCA to be purified. According to the patent (column 3, line 53), the matrix will be 1/3 of the column height. The patentee recommends a matrix height of at least 20 cm (column 8, line 22). According to the example 2, 100g of matrix are used. 101g per 1000g matrix of BSA buffer (compound to purify) are used.

Lihme discloses a purification process wherein the raw material is applied. The medium binds the target molecule (step 4). The liquid supernatant is evacuated (step 7) and the target molecule is eluted (step 8).

According to Applicants'process, only 0.5 to 10% by weight of silica, with respect to the weight of NCA to be purified, are used. In the process according to the invention, the impurities are absorbed on the silica whereas the NCA are not absorbed on the silica (see examples). Applicants'process is not a chromatography method. The NCA to be purified are dissolved in a non polar solvent, then brought into contact with silica and passed through a filter. Impurities are absorbed on silica. No step of

successive elution of NCA or of other compounds is used. This allows the use of lower amounts of silica.

The technique of chromatography comprises the following steps.

1- Dissolution of the mixture in an appropriate solvent,

2- Place the obtained solution in front of a silica column (or another matrix);

3- Absorption of the mixture on the silica; and

4- Successive elution of the mixture constituents by using an appropriate solvent or mixture of solvents. This is not Applicants'process.

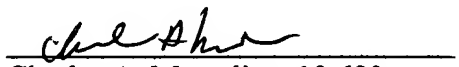
The Examiner believes that Halstrom discloses that aromatic hydrocarbons are good solvents for NCA. You will note that U.S. 4,267,344 discloses the use of refluxing aromatic hydrocarbons. The solubility is improved when the temperature is increased. Guddal discloses a thin layer chromatography which is a very different technique of chromatography.

Claims 6 to 10 claim an acid treatment of the purified NCA, i.e. a supplemental purification step which follows the treatment of NCA with silica. The documents cited by the Examiner (U.S. 5,449,461 and U.S. 5,368,736) disclose the improvement of chromatography by a first acidification of the mixture to be chromatographied or by controlling the pH-values of the eluant. These patents do not disclose an acidic treatment

of the purified NCA, which follows the treatment of NCA with silica. Therefore, withdrawal of these grounds of rejection is requested.

In view of the amendments to the claims and above remarks, it is believed that the claims point out Applicants' patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,
Hedman and Costigan



Charles A. Muserlian, 19,683
Attorney for Applicant(s)
Tel. # (212) 302 8989

CAM:mlp
Enclosures